An underwater photograph showing a diver in the upper center, looking down at a large, circular net structure on the ocean floor. The net is made of thin, light-colored lines and is spread out in a circular pattern. The water is a deep blue, and the scene is dimly lit, with some light reflecting off the net and the diver's equipment.

Open Ocean Aquaculture: The Frontier at our Doorstep

Randy Cates
President of
Cates International, Inc.

Presentation Outline

- History
- Why Open Ocean Fish Farming is important
- Where we are today
- Where we will be in a few years
- What the challenges are facing Aquaculture in the U.S.
- Recommendations
- Conclusion

History of Fish Farming in Hawaii

Ancient Hawaiians survival relied on fish farming

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A scenic photograph of a coastal landscape. In the foreground, a curved stone wall separates a dark, calm body of water from a sandy beach. To the right of the beach, a small, single-story house with a brown roof is nestled among green trees and shrubs. In the background, a large, rugged mountain with sparse vegetation rises under a sky filled with white and grey clouds. The overall scene suggests a remote or historical coastal settlement.

Old technology still
being used today

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The background image is an underwater photograph showing a large, rectangular net structure, likely a fish cage or pen, suspended in the water. The net is made of fine mesh and is supported by a framework of ropes and floats. The water is a deep blue, and sunlight filters down from the surface, creating a dappled light effect. The net structure is the central focus of the image, illustrating the modern technology used in open ocean fish farming.

Open Ocean Fish Farming utilizes
both Ancient and Modern
Technology

Why Open Ocean Fish Farming is Important

- Our fisheries have changed
- We must be able to meet the needs of our own communities
- It is not right to exploit other people's resources
- It is the best place to conduct this new industry, it is sustainable

Why Farm Fish?

- We as a nation have made the choice to farm our lands, we have chosen to farm everything thing else that we eat
- It is time to find ways to farm our seafood!
- We must strive to continually improve the management of our resources, and fish farming will be part of this management plan

Cates International Fish Farm

- First open ocean fish farm lease in the nation
- Two miles offshore
- Four cages
- We raise only native fish – Moi
- Up to 1.2 millions pounds production
- It is profitable
- **No grant money for start up!**



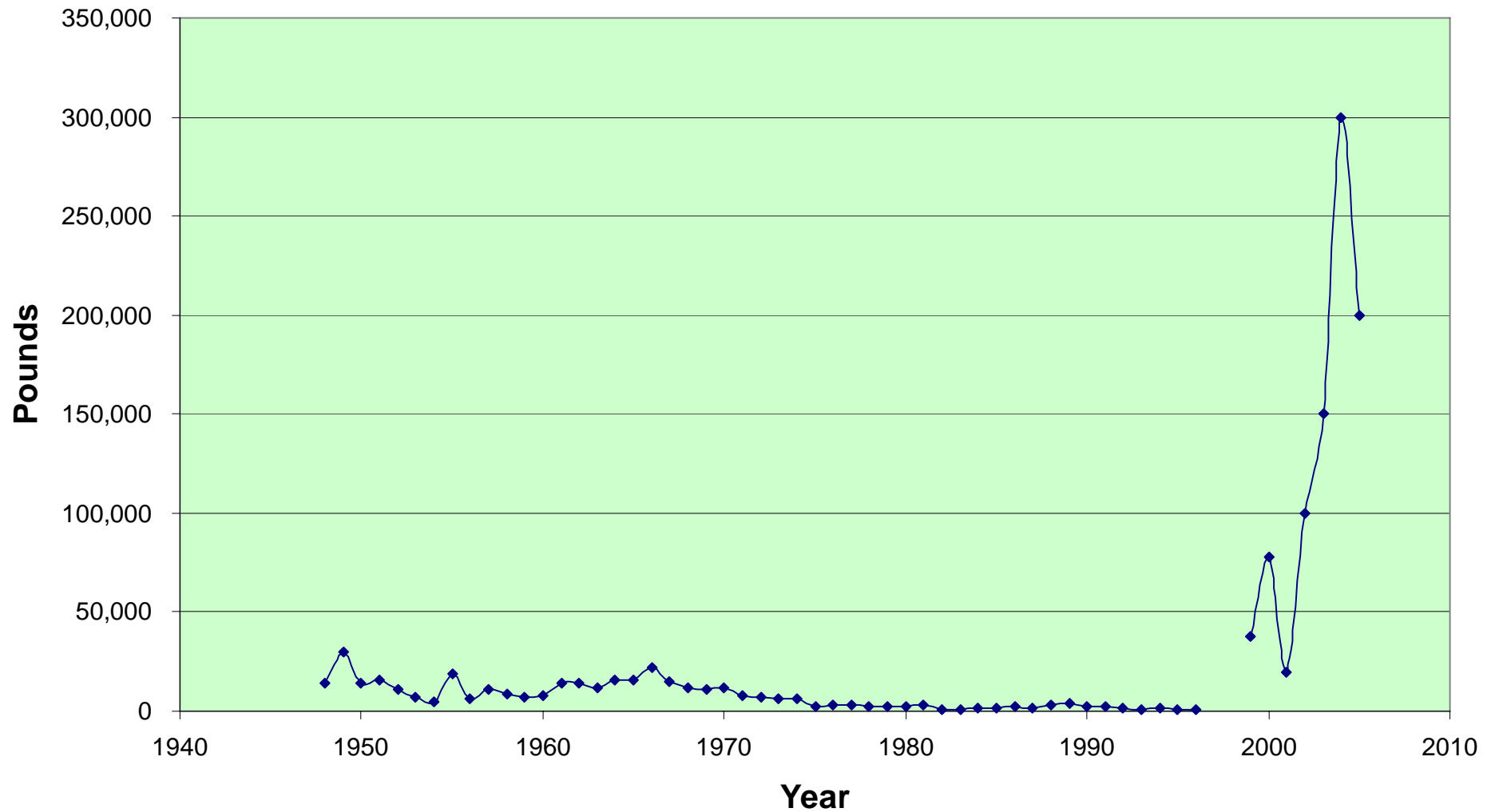
Current Status for Hawaii

- 10 Ocean Spar 3000 cages permitted under current leases
- Production per cage limits at about 150,000 pounds per crop (stocking density of 30 kg/m³)
- Possible to go higher by perhaps a factor of two
- Thus, currently permitted industry could produce 2,100,000 to 2,600,000 pounds/yr

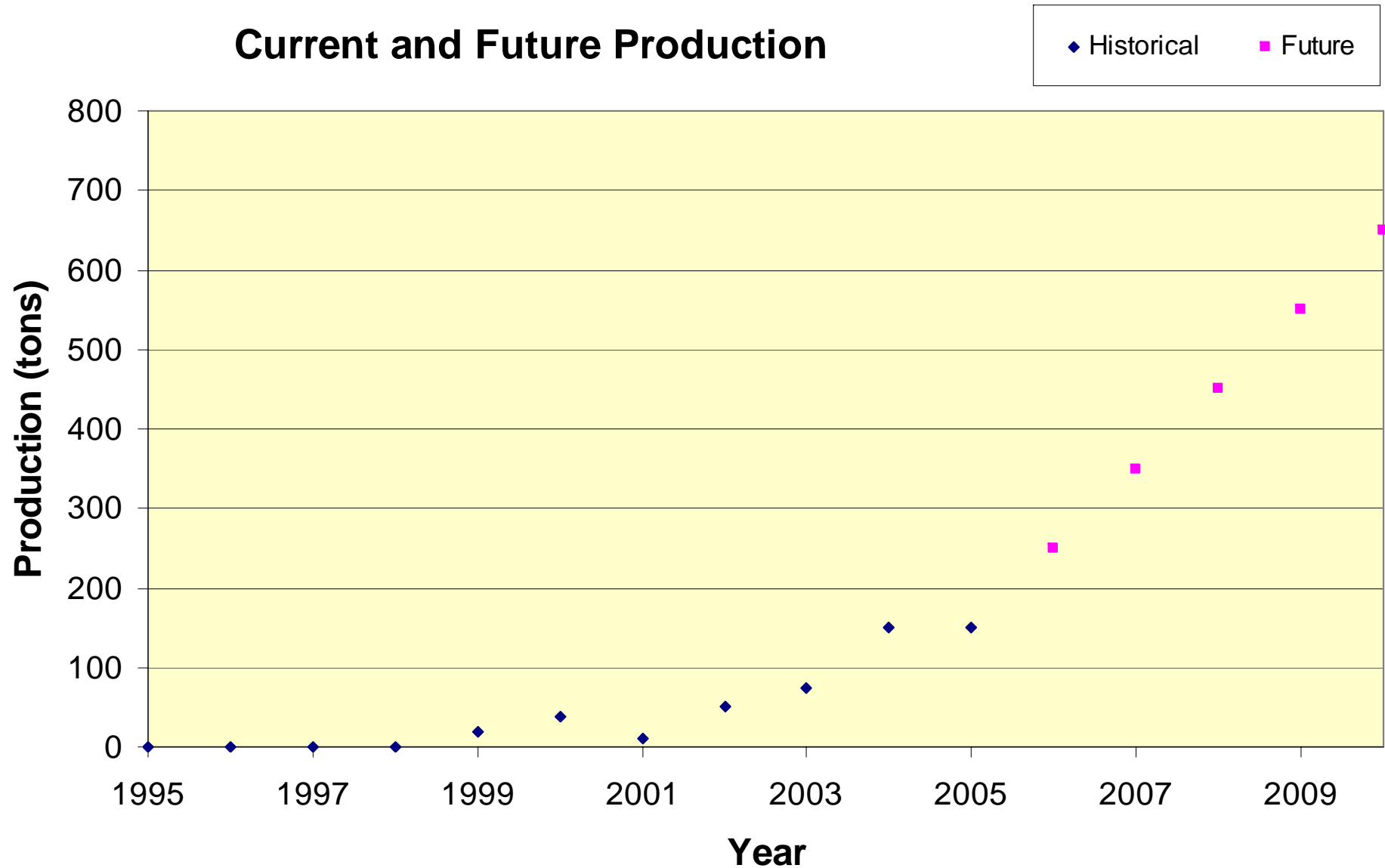
Future plans for Cates International

- August 2005 – Start construction of commercial fish hatchery
- 2006 Expand current site to eight cages
- 2006 Permit for new site with eight cages
- This will increase our production from 1.2 million pounds to approximately 4 million pounds per year

Moi Production History



The More Distant Future



Open Ocean Fish Farms in other areas of the U.S.

- Two farms in Hawaii, more in the permit process
- One farm in Puerto Rico



Open Ocean Aquaculture is a Reality

- Due to the success and failures of the salmon fish farming
- Depleted wild stocks, and increased consumer demand for seafood
- Can be conducted in an environmentally sound manner
- And is profitable

Challenges for open ocean fish farming

- Creating a new industry with no impact
 - It is impossible to do, everything has an impact!
- Finding the right place to locate farms
 - It is not appropriate for every community
- Educating the public about our industry

Challenges (cont.)

- Attracting the right investment
- Fish hatcheries!
- Species development
- Research money? Where is it?
- Community support

Recommendations

- Environmental Issues
 - Open ocean Aquaculture is an agricultural activity in the sea
 - Necessarily has a set of waste discharges
 - Must recognize that this consequence is similar to that for agriculture
 - Natural ecosystem uses aquaculture waste as food
- Technology improvements
 - Automated Feeders
 - Automated cage cleaners
 - Effective monitoring methods and protocols
- Urgently need more species to cultivate
- Need larger systems further from shore
- Commitment by State and National regulators that aquaculture is needed and necessary activity
- Money for Research and Development
- Researchers and Industry must work together, and utilize \$ wisely

In Conclusion

- The time has come for us to find new ways to produce seafood in an environmentally sustainable manner
- We can no longer just rely on the wild stocks with the increasing demand
- We cannot exploit everyone else's resources



In Conclusion (cont.)

- Seafood should be available for everyone
- It should be our goal to make it affordable
- Open Ocean Fish Farming can help in achieving this goal



